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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,422	12/12/2003	Bing Shen	139805	1421

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CANTOR COLBURN, LLP
55 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

EXAMINER	
HO, ALLEN C	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/707,422	SHEN ET AL.	
	Examiner	Art Unit	
	Allen C. Ho	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3 and 12-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Weinberg (U. S. Patent No. 6,628,984 B2).

With regard to claims 1-3, Weinberg disclosed a focal spot sensing device comprising: a housing that resists x-ray beams (column 4, lines 15-17); an opening (**7**) disposed in a wall of the housing that allows an x-ray beam to enter the housing; and a sensor device (**6**) disposed in the housing such that an area of the x-ray allowed to fall on the sensor device changes in both position and size at the sensor device in response to the movement of the focal spot. Note: The sensor device itself does not interpret a position of the x-ray beam for calculating a position of a focal spot. Rather, this function is performed by a control mechanism. See claims 10 and 11.

With regard to claims 12-15, Weinberg disclosed a housing that resists x-ray beams (column 4, lines 15-17); an opening (**7**) disposed in a wall of the housing that allows an x-ray beam to enter the housing; and means (**6**) for calculating a position of a focal spot; wherein an area of the x-ray is allowed to fall on the means for calculating such that the area changes in both position and size at the means for calculating in response to movement of the focal spot.

3. Claims 27-29 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Popescu (U. S. Patent No. 6,652,143 B2).

With regard to claim 27, Popescu disclosed a method for sensing a focal spot, the method comprising: receiving an x-ray beam into an opening of a focal spot sensing device, the focal spot sensing device having a sensor device (CT matrix detector); interpreting a position of the x-ray beam (column 4, lines 6-14); and calculating a position of the focal spot in response to an area of the x-ray beam allowed to fall on the sensor device changing in both position and size at the sensor device in response to movement of the focal spot (column 3, lines 41-47) in a plane parallel to the plane of the sensor device (Fig. 2, d_2 is constant); wherein a change in output signal of the sensor device is responsive to a change in position and size of the area of x-ray allowed to fall on the sensor device in response to the movement of the focal spot; and wherein the change in output signal is a position indicator for the focal spot.

With regard to claim 28, Popescu disclosed the method of claim 27, further comprising calibrating a CT system detector in response to the position of the focal spot (column 6, lines 1-20).

With regard to claim 29, Popescu disclosed the method of claim 27, further comprising receiving the x-ray beam at the sensor device disposed in the focal spot sensing device, the sensor device includes at least two detector elements arranged next to each other (column 3, lines 33-34) such that the x-ray beam passing through the opening is allowed to strike more than one of the at least two detector elements, but only a portion (0-100%) of each; measuring a change in output signal of each detector element in response to a change in position and size of the area of x-rays allowed to fall on each detector element in response to the movement of the focal spot;

and determining the position of the focal spot in response to the change in output signal (column 3, lines 41-47).

With regard to claim 31, Popescu disclosed the method of claim 27, wherein the sensor device comprise at least two detector elements, and further comprising: allowing the x-ray beam to fall on just a portion of each of at least two detector elements (Figs. 1 and 5).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberg (U. S. Patent No. 6,628,984 B2).

With regard to claims 20-22, Weinberg disclosed an imaging system comprising: a detector array that includes a focal spot sensing device, the focal spot sensing device includes: a housing that resists x-ray beams (column 4, lines 15-17); an opening (**7**) disposed in a wall of the housing; and a sensor device (**6**) disposed in the housing. However, although Weinberg disclosed a gamma ray source (**4**), Weinberg failed to disclose an x-ray source.

Weinberg disclosed that a sensor device sensitive to other radiations could be used (column 12, lines 26-36).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide an x-ray source, since the sensor device disclosed by Weinberg is capable of detecting x-rays.

6. Claims 4, 5, 6-8, 16, 23, 24, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberg (U. S. Patent No. 6,628,984 B2) as applied to claims 1, 4, 12, and 20 above, and further in view of Levin *et al.* (U. S. Patent No. 6,114,703).

With regard to claims 4, 5, 6, 8, 16, 23, 24, and 32, Weinberg disclosed the device of claims 1, 4, and 12. However, although Weinberg disclosed a sensor device that comprises fluorescent screen coupled to position-sensitive photomultipier (column 4, lines 23-30), Weinberg failed to disclose a sensor device that comprises a fluorescent screen and photodiodes.

Levin *et al.* disclosed a sensor device that comprises a fluorescent screen and photodiodes. Levin *et al.* taught that high spatial resolution is achieved by replacing photomultiplier tubes with photodiodes (column 4, lines 24-30).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to replace the sensor device of Weinberg with a sensor device that comprises a fluorescent screen and photodiodes, since a person would be motivated to obtain high-resolution images.

With regard to claim 7, Weinberg and Levin *et al.* disclosed the device of claim 6, wherein the opening is dimensioned to be approximately a pinhole (column 4, lines 15-22).

7. Claims 9, 17, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberg (U. S. Patent No. 6,628,984 B2) and Levin *et al.* (U. S. Patent No. 6,114,703) as

applied to claims 8, 16, and 24 above, and further in view of Warren (U. S. Patent No. 6,362,481 B1).

With regard to claims 9, 17, and 25, Weinberg and Levin *et al.* disclosed the device of claims 8 and 16 and the system of claim 24. However, Weinberg and Levin *et al.* failed to disclose a transparent epoxy layer that couples the fluorescent layer to the position sensitive photodiode.

Warren disclosed a sensor device that includes a fluorescent screen (**36**) and a position sensitive photodiode (**40**), wherein the scintillator/fluorescent screen is optically coupled to the position sensitive photodiode by a transparent epoxy layer (**46**). Warren taught that such an arrangement provides an efficient sensor device because the presence of a transparent epoxy layer between the fluorescent screen and the photodiode minimizes optical losses (column 1, lines 28-63).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a transparent epoxy layer that couples the fluorescent layer to the position sensitive photodiode, since a person would be motivated to reduce signal loss between the fluorescent screen and the photodiode.

8. Claims 1-4, 10-15, 18-23, 26-29, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Popescu (U. S. Patent No. 6,652,143 B2) in view of Sasaki *et al.* (U. S. Patent No. 6,411,672 B1).

With regard to claim 1, Popescu disclosed a focal spot sensing device comprising: a sensor device (CT matrix detector) that interprets a position of the x-ray beam for calculating a position of a focal spot; an area of the x-ray allowed to fall on the sensor device changes in both

position and size at the sensor device in response to movement of the focal spot (column 3, lines 41-47).

However, Popescu failed to disclose that the sensor device is disposed in a housing.

Sasaki *et al.* disclosed a CT detector (**25**) disposed in a housing (**17**). The housing comprises an opening (**16**) that allows an x-ray beam to enter the housing. Furthermore, the housing comprises temperature-controlling means to make the temperature of the CT detector uniform. Sasaki *et al.* taught that temperature non-uniformity in the detector elements causes artifacts in a CT image (column 1, lines 32-50).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to enclose a CT detector in a housing as disclosed by Sasaki *et al.* First, a person would be motivated to protect the CT detector. Second, a person would be motivated to provide a means to mount the CT detector to the rotating gantry. And third, a person would be motivated to obtain a CT image without artifacts by reducing temperature non-uniformity in the detector elements.

With regard to claims 2 and 3, Popescu and Sasaki *et al.* disclosed the device of claim 1, wherein the opening is sized so that the x-ray beam at a surface of the sensor device is less than a total sensitive area of the sensor device (Popescu, Fig. 5).

With regard to claims 4 and 32, Popescu and Sasaki *et al.* disclosed the device of claim 1, wherein the sensor device includes at least two detector elements (column 3, lines 33-34) arranged next to each other such that the x-ray beam passing through a same area of the opening is allowed to strike two of the at least two detector elements (Popescu, Fig. 5).

With regard to claims 10 and 11, Popescu and Sasaki *et al.* disclosed the device of claim 1, further comprising a control mechanism (computer) in electronic communication with the sensor device, wherein the control mechanism calculates the focal spot movement and compensates for detector response error induced by focal spot movement (Popescu, column 6, lines 21-32).

With regard to claim 12, Popescu disclosed a focal spot sensing device comprising: means (CT matrix detector) for calculating a position of a focal spot; wherein an area of the x-ray is allowed to fall on the means for calculating such that the area changes in both position and size at the means for calculating in response to movement of the focal spot (column 3, lines 41-47).

However, Popescu failed to disclose a housing, which comprises an opening that allows an x-ray beam to enter the housing.

Sasaki *et al.* disclosed a CT detector (**25**) disposed in a housing (**17**). The housing comprises an opening (**16**) that allows an x-ray beam to enter the housing. Furthermore, the housing comprises temperature-controlling means to make the temperature of the CT detector uniform. Sasaki *et al.* taught that temperature non-uniformity in the detector elements causes artifacts in a CT image (column 1, lines 32-50).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to enclose the means for calculating in a housing as disclosed by Sasaki *et al.* First, a person would be motivated to protect the means for calculating. Second, a person would be motivated to provide a means to mount the means for calculating to the rotating gantry.

And third, a person would be motivated to obtain a CT image without artifacts by reducing temperature non-uniformity in the detector elements.

With regard to claims 13 and 14, Popescu and Sasaki *et al.* disclosed the device of claim 12, wherein the opening is sized such that the x-ray beam at a surface of the means for calculating is less than a total sensitive area of the means for calculating (Popescu, Fig. 5).

With regard to claim 15, Popescu and Sasaki *et al.* disclosed the device of claim 12, wherein the means for calculating includes at least two detector elements (column 3, lines 33-34) arranged next to each other such that the x-ray beam passing through a same area of the opening is allowed to strike two of the at least two detector elements (Popescu, Fig. 5).

With regard to claims 18 and 19, Popescu and Sasaki *et al.* disclosed the device of claim 12, further comprising a control mechanism (computer) in electronic communication with the the means for calculating a position of a focal spot, wherein the control mechanism calculates the focal spot movement and compensates for detector response error induced by focal spot movement (Popescu, column 6, lines 21-32).

With regard to claim 20, Popescu disclosed an imaging system comprising: an x-ray source (anode) that produces an x-ray beam and has a focal spot; a detector array that receives the x-ray beam and includes a focal spot sensing device, the focal spot sensing device includes a sensor device (CT matrix detector) for calculating a position of the focal spot.

However, Popescu failed to disclose that the sensor device is disposed in a housing.

Sasaki *et al.* disclosed a CT detector (**25**) disposed in a housing (**17**). The housing comprises an opening (**16**) that allows an x-ray beam to enter the housing. Furthermore, the housing comprises temperature-controlling means to make the temperature of the CT detector

uniform. Sasaki *et al.* taught that temperature non-uniformity in the detector elements causes artifacts in a CT image (column 1, lines 32-50).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to enclose a CT detector in a housing as disclosed by Sasaki *et al.* First, a person would be motivated to protect the CT detector. Second, a person would be motivated to provide a means to mount the CT detector to the rotating gantry. And third, a person would be motivated to obtain a CT image without artifacts by reducing temperature non-uniformity in the detector elements.

With regard to claims 21 and 22, Popescu and Sasaki *et al.* disclosed the system of claim 20, wherein the opening is sized such that the x-ray beam at a surface of the sensor device is less than a total sensitive area of the sensor device (Popescu, Fig. 5).

With regard to claim 23, Popescu and Sasaki *et al.* disclosed the system of claim 20, wherein the sensor device includes at least two detector elements (column 3, lines 33-34) arranged next to each and the opening is sized so that the x-ray beam strikes the at least two detector elements (Popescu, Fig. 5).

With regard to claim 26, Popescu and Sasaki *et al.* disclosed the system of claim 20, further comprising a control mechanism (computer) in electronic communication with the detector array and the x-ray source.

9. Claims 5, 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Popescu (U. S. Patent No. 6,652,143 B2) and Sasaki *et al.* (U. S. Patent No. 6,411,672 B1) as applied to claims 1 and 4 above, and further in view of Warren (U. S. Patent No. 6,362,481 B1).

With regard to claims 5, 6, 8, and 9, Popescu and Sasaki *et al.* disclosed the device of claims 1 and 4. However, Popescu and Sasaki *et al.* failed to disclose a sensor device that includes a fluorescent screen, which faces the opening, and a position sensitive photodiode that is arranged between the fluorescent screen and a back wall of the housing, wherein the fluorescent screen is optically coupled to the position sensitive photodiode by a transparent epoxy layer.

Warren disclosed a CT sensor device that includes a fluorescent screen (**36**) and a position sensitive photodiode (**40**), wherein the scintillator/fluorescent screen is optically coupled to the position sensitive photodiode by a transparent epoxy layer (**46**). Warren taught that such an arrangement provides an efficient x-ray detector because the presence of a transparent epoxy layer between the fluorescent screen and the photodiode minimizes optical losses (column 1, lines 28-63). Furthermore, this CT sensor device will remain operational at high temperature because the epoxy layer's CTE is matched to the scintillator/fluorescent screen and the photodiode.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the CT sensor device disclosed by Warren in the CT imaging system disclosed by Popescu and Sasaki *et al.*, since a person would be motivated to capture all of the x-rays transmitted through the patient by employing an efficient x-ray detector. Furthermore, a person would be motivated save operating cost by using an x-ray detector that is not susceptible to damage due to thermal stress.

10. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Popescu (U. S. Patent No. 6,652,143 B2) as applied to claim 27 above, and further in view of Warren (U. S. Patent No. 6,362,481 B1).

With regard to claim 30, Popescu disclosed the method of claim 27, further comprising receiving the x-ray beam at the sensor device disposed in the focal spot sensing device. However, Popescu failed to disclose that the sensor device includes a fluorescent screen, which faces the opening so that the x-ray beam strikes the fluorescent screen, and a position sensitive photodiode is arranged between the fluorescent screen and a back wall of the focal spot sensing device.

Warren disclosed a CT sensor device that includes a fluorescent screen (**36**) and a position sensitive photodiode (**40**), wherein the scintillator/fluorescent screen is optically coupled to the position sensitive photodiode by a transparent epoxy layer (**46**). Warren taught that such an arrangement provides an efficient x-ray detector because the presence of a transparent epoxy layer between the fluorescent screen and the photodiode minimizes optical losses (column 1, lines 28-63). Furthermore, this CT sensor device will remain operational at high temperature because the epoxy layer's CTE is matched to the scintillator/fluorescent screen and the photodiode.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the CT sensor device disclosed by Warren in the CT imaging system disclosed by Popescu and Sasaki *et al.*, since a person would be motivated to capture all of the x-rays transmitted through the patient by employing an efficient x-ray detector. Furthermore, a person would be motivated save operating cost by using an x-ray detector that is not susceptible to damage due to thermal stress.

Response to Arguments

11. Applicant's arguments filed 01 May 2006 with respect to claims 4, 5, 20-25, 28-30, and 32 have been fully considered and are persuasive. The objections of claims 4, 5, 20-25, 28-30, and 32 have been withdrawn.

12. Applicant's arguments filed 01 May 2006 with respect to claims 12-19 have been fully considered and are persuasive. The rejection of claims 12-19 under 35 U.S.C. 112, second paragraph, has been withdrawn.

13. Applicant's arguments filed 01 May 2006 have been fully considered but they are not persuasive.

With regard to the rejection of claims 1 and 12 under 35 U.S.C. 102(e) as being anticipated by Weinberg (U. S. Patent No. 6,628,984 B2), the applicants argue that Weinberg failed to disclose a sensor device disposed in the housing such that an area of the x-ray allowed to fall on the sensor device changes in both position and size at the sensor in response to the movement of the focal spot in a plane parallel to the plane of the sensor device. The examiner respectfully disagrees. As noted in MPEP § 2114, an apparatus must be distinguished from the prior art in terms of structure. The structure of the focal spot sensing device claimed in claims 1 and 12 comprises a housing, an opening disposed in the housing, and a sensor device disposed in the housing. The recitation of a focal spot moving in a plane parallel to the plane of the sensor device does not contribute to the structure of the focal spot sensing device because the focal spot is not part of the structure being claimed. Indeed, claims 1 and 12 do not claim an x-ray source having a focal spot at all. However, if an x-ray source is claimed, then these claims could no longer be called a focal spot sensing device as recited in the preamble. Furthermore, Weinberg

disclosed a sensor device (**6**) disposed in a housing, the housing comprises a pinhole opening (**7**). It can be easily shown and verified both mathematically (*i. e.*, geometry based on line of sight) and experimentally (*i. e.*, shinning a flashlight on a homemade pinhole and observing the transmitted light on the other side of the pinhole) that a movement of a radiation source relative to a pinhole opening causes the position and size of its image on the sensor device to change accordingly. This feature and/or characteristic of a pinhole camera is also disclosed by Popescu (U. S. Patent No. 6,652,143 B2). If a prior art structure is capable of performing the intended use, then it meets the claim. Therefore, the rejection is being maintained.

With regard to the rejection of claim 27 under 35 U.S.C. 102(e) as being anticipated by Popescu (U. S. Patent No. 6,652,143 B2), the applicants argue that Popescu failed to disclose the step of calculating a position of the focal spot in response to an area of the x-ray beam allowed to fall on the sensor device changing in both position and size at the sensor device in response to movement of the focal spot in a plane parallel to the plane of the sensor device, wherein a change in output signal of the sensor device is responsive to a change in position and size of the area of x-ray allowed to fall on the sensor device in response to the movement of the focal spot; and wherein the change in output signal is a position indicator for the focal spot. The examiner respectfully disagrees. Popescu disclosed a method that comprises a step of calculating a position of the focal spot in response to an area of the x-ray beam allowed to fall on the sensor device changing in both position and size at the sensor device in response to movement of the focal spot (column 3, lines 41-47) in a plane parallel (when the focal point moves at a constant d_2. See Figs. 2, 4, and 6) to the plane of the sensor device; wherein a change in output signal of the sensor device is responsive to a change in position and size of the area of x-ray allowed to

fall on the sensor device in response to the movement of the focal spot; and wherein the change in output signal is a position indicator for the focal spot. Therefore, the rejection is being maintained.

With regard to the rejections of claims 15, 29, and 31 under 35 U.S.C. 102(e) as being anticipated by Weinberg (U. S. Patent No. 6,628,984 B2) and Popescu (U. S. Patent No. 6,652,143 B2), respectively, the applicants argue that Weinberg and Popescu failed to teach only a portion of each detector element is illuminated by x-rays. The examiner respectfully disagrees. As defined by Merriam-Webster dictionary, a portion is a part or a share of something. However, there is nothing in the definition that limits a portion to less than 100% as argued by the applicants. As noted in MPEP § 2111, during patent examination, claims are given their broadest reasonable interpretation consistent with the specification. Accordingly, the examiner interprets a portion to be anything from 0 to 100%. Therefore, the rejections are being maintained.

With regard to the rejection of claims 20-22 under 35 U.S.C. 103(a) as being unpatentable over Weinberg (U. S. Patent No. 6,628,984 B2), the applicants argue that the incorporation of an x-ray source that produces an x-ray beam and has a focal spot with the intraoperative gamma camera would render the gamma camera unsatisfactory for its intended purpose because an x-ray source would distort the patient emitted radiation. The examiner respectfully disagrees. The examiner never suggested that the x-rays and gamma rays are detected simultaneously. Weinberg disclosed a portable camera with tomographic capability, which is not limited to any specific radiation or application (column 12, lines 19-25). Weinberg taught that a sensor device sensitive to other radiations could be used (column 12, lines 26-36).

Therefore, it would have been obvious to use it with any radiation source, including an x-ray source.

With regard to the rejection of claims 4, 23, and 32 under 35 U.S.C. 103(a) as being unpatentable over Weinberg (U. S. Patent No. 6,628,984 B2) in view of Levin *et al.* (U. S. Patent No. 6,114,703), the applicants argue that Weinberg and Levin *et al.* failed to teach only a portion of each detector element is illuminated by x-rays. The examiner respectfully disagrees. As defined by Merriam-Webster dictionary, a portion is a part or a share of something. However, there is nothing in the definition that limits a portion to less than 100% as argued by the applicants. As noted in MPEP § 2111, during patent examination, claims are given their broadest reasonable interpretation consistent with the specification. Accordingly, the examiner interprets a portion to be anything from 0 to 100%. Therefore, the rejections are being maintained.

With regard to the rejection of claims 1-4, 10-15, 18-23, 26-29, 31, and 32 under 35 U.S.C. 103(a) as being unpatentable over Popescu (U. S. Patent No. 6,652,143 B2) in view of Sasaki *et al.* (U. S. Patent No. 6,411,672 B1), the applicants again present the same argument as before. The rejection is being maintained for the reasons set forth above.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Allen C Ho

Allen C. Ho, Ph.D.
Primary Examiner
Art Unit 2882

28 June 2006